



Dr. Blosa Science

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The Science Foundation College
Uganda East Africa
Senior one to senior six
+256 778 633 682, 753 802709
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UACE P515/1 Principles and practices of agriculture 2009

SECTION A (30 MARKS)

Write the letter corresponding to the correct answer

- Which one of the following least affect the total pore space in a soil sample?
 - Soil texture
 - Soil organic matter
 - Soil structure
 - Soil pH
- Which of the following are useful products from cellulose digestion in ruminants?
 - Ammonia and nitrates
 - Carbon dioxide and methane
 - Vitamins K and B complex
 - Heat and water
- The main reason for debeaking poultry is to
 - Control cannibalism
 - Make it safer to handle bird
 - Enable birds easily pick food
 - Groom birds
- In cattle a cross between a pure breeding black coated and a pure breeding white coated animal produce black coated offspring. If a heterozygous black bull was mated with a white cow, the result of the cross would be
 - All black
 - 3black: 1 white
 - 1 black : 1 white
 - 3 white : 1 black
- The demand for agricultural products is said to be inelastic because a
 - slight rise in price leads to a big reduction in demand
 - big increase in price causes a small decrease in demand
 - a slight increase in price produces a slight increase in demand
 - big increase in price leads to a big decrease in demand
- The following operations are used in seed treatment before planting **except**

- A. Seed conditioning
 - B. Seed scarification
 - C. Pre-chilling
 - D. Germination test
7. In farm production, the total cost remain constant when
- A. the variable input is free
 - B. not fixed costs are incurred
 - C. the variable cost is greater than the total cost
 - D. the fixed cost is free
8. Which one of the following methods of irrigation is best suited for arid area?
- A. Overhead
 - B. Surface
 - C. Drip
 - D. subsurface
9. When small seed are sown too deep, their seedling do not emerge because they
- A. are suppressed by the soil
 - B. do not get enough water
 - C. exhaust their food reserves before emerging
 - D. do not get enough air
10. Cross pollination in paw-paw is encouraged by
- A. close spacing of plants
 - B. female and male flower maturing at different times
 - C. female and male flowers being borne on different plant
 - D. transfer of pollen grain by insects
11. The ratio of male to female bird in a properly managed breeding unit should be
- A. 1:1
 - B. 1:5
 - C. 1:10
 - D. 1:20
12. The reason for connecting one of the battery terminal to the frame of a tractor is to
- A. provide power required for igniting the engine
 - B. provide for earthing
 - C. provide electric power for light
 - D. produce high voltage needed for sparking at the plug
13. The function of land wheel in an ox-plough is to
- A. clean the share
 - B. regulate the depth of Ploughing
 - C. provide an attachment for mould board
 - D. stabilize the plough
14. Which one of the following groups contain only pest with biting and chewing mouth parts
- A. Aphids, stalk borers, weevils

- B. Bollworm, white fly, weevil
 - C. Cutworm, grasshopper, termite
 - D. Leafhopper, mealy bug, termite
15. Working on a wet clay soil results into
- A. Formation of puddles in the soil
 - B. Flocculation of soil particles
 - C. Loss of soil texture
 - D. Loss of soil air
16. A hormone secreted by the corpus luteum is
- A. Progesterone
 - B. Luteinizing hormone
 - C. Follicle stimulating hormone
 - D. testosterone
17. Which one of the following is a factor to consider when selecting a site for a farm building?
- A. Water supply
 - B. Accessibility
 - C. Direction of prevailing wind
 - D. Availability of skills
18. Which one of the following best describes a plant cell, which is fully turgid?
- A. Osmotic potential of the cell is zero
 - B. Pressure potential of the cell is zero
 - C. Water potential of the cell sap is equal to the osmotic potential of the cell
 - D. Pressure potential of the cell is equal to osmotic potential of the sap.
19. During the upward movement of water in the xylem vessels, the water molecules do not easily pull apart because of high
- A. cohesive forces
 - B. viscosity
 - C. surface tension
 - D. adhesive force
20. The function of the ignition coil in the electrical system of an engine is to
- A. Transmit electric current from the battery
 - B. Provide a spark for ignition
 - C. Step up low voltage
 - D. Provide electric current for lighting
21. A likely response when price of a product is set below equilibrium is that
- A. buyers become reluctant to buy the product
 - B. the product floods the market
 - C. seller hoards the product and raises the price of the product
 - D. the price of the product continues to fall
22. Which one of the following conditions discourages diversification in agricultural production?
- A. Presence of diseases and pests
 - B. Soil fertility

- C. Absence of multi-skilled labor
 - D. Poor weather conditions
23. Animals are kept in a railage for at least 24 hours before slaughter in order to
- A. Facilitate skinning and easy devisceration
 - B. Ensure better bleeding during slaughter
 - C. Rest the animal foe easy handling during slaughter
 - D. Conserve energy and ensure better preservation of meat.
24. In natural incubation, egg rotting can be prevented by
- A. Confirming the mother birds in their nest
 - B. Candling the eggs before incubation
 - C. Raising the nest of the ground
 - D. Providing water and feeds near the nest
25. Clay soils are referred to as heavy soils because they
- A. are poorly drained
 - B. stick together
 - C. hold a lot of water
 - D. have a stable structure
26. The reason for including feed additives in animal feeds it to
- A. improve digestibility
 - B. improve palatability
 - C. provide bulk to the feed
 - D. improve nutritive value
27. Which one of the following machines only regulates seed rate and quantity to be planted per area?
- A. Planter
 - B. Driller
 - C. Tuber
 - D. Broad caster
28. An engine that is about to knock will produce smoke that is
- A. blue
 - B. white
 - C. black
 - D. misty
29. Which one of the following does not influence labour on a farm?
- A. Organization
 - B. Population structure
 - C. Wage level
 - D. Availability of essential commodities
30. Which one of the following machines is suitable for construction of soil conservation structure?
- A. Disc plough
 - B. Mould plough
 - C. Chisel plough
 - D. Hallows

SECTION B

31. (a) Describe the path of an electric current from that battery to the spark plug in petrol engine (04marks)
(b) Suggest the possible causes of the following faults in the ignitions system
(i) the engine stops suddenly (02marks)
(ii) engine runs erratically (02marks)
(iii) engine does not start
32. (a) Explain five factors that determine availability of labour for farm work. (05 marks)
(b) Describe five ways of improving labour efficiency on a farm. (05marks)
33. (a) Differentiate between brooding and incubation as used in poultry production. (02marks)
(b) Give four characteristics of a good brooder. (04mark)
(c) Outline the activities that should be carried out in preparing a brooder for a day-old chicks. (04marks)
34. (a) Give three factors of weed that affect their response to herbicides. (03marks)
(b) Explain seven cultural methods that could be used to control weeds. (07marks)
35. (a) Explain six ways by which drainage affects agricultural production. (06 marks)
(b) Suggest four considerations to be made when choosing a method of draining. (04marks)

Suggested answer

1D	4C	7A	10C	13B	16A	19A	22C	25B	28B
2D	5B	8C	11C	14C	17B	20C	23D	26D	29B
3A	6D	9C	12B	15A	18D	21C	24B	27A	30A

Comments

6. Seed conditioning is the process of removing these unwanted materials from a seed lot, along with overall improvement of seed quality
24. Candling the eggs before incubation ensures that eggs are fertilized

SECTION B

31. (a) Describe the path of an electric current from that battery to the spark plug in petrol engine (04marks)
The battery is connected to an ignition coil and then to the spark plug
(b) Suggest the possible causes of the following faults in the ignitions system
(i) the engine stops suddenly (02marks)
Due to lack of spark due problem with ignition coil
(ii) engine runs erratically (02marks)
Worn out plug

(iii) engine does not start
dead battery

32. (a) Explain five factors that determine availability of labour for farm work. (05 marks)

- Health conditions of the workers: healthy workers are able to work long hours compared to sickly worker
- Motivation in terms of salaries and allowances.
- Good working conditions such as housing, transport and health allowances attract many laborers.
- Population size: a high population leads to provision of labor e.g. china
- Retirement age: high retirement age guarantees a high labor supply.
- Immigration and emigration (increases or decrease labor)
- Labor mobility: high labor mobility leads to high labor.
- Working time: as number of working time increases supply of labor also increases.
- Strength of trade unions: these can reduce the number of people employed by fixing a minimum wage.
- Nature of work: heavy and risky work attracts fewer laborers.
- Level of education and skills: highly skilled jobs have fewer workers
- Political stability: a stable country has more people willing to work than unstable country.
- Government policies such as minimum age of a laborer and minimum wage may reduce the number people employed
- Attitude toward agriculture
- Level of advertisement of agricultural work
- Rural-urban migration reduce supply of labor on the farms

(b) Describe five ways of improving labour efficiency on a farm. (05marks)

- on job training
- effective supervision/management
- encouraging specialization
- providing incentives such as attractive salary
- improving technology
- timely payment of wages
- provision of job security
- division labor among employees
- favorable climate/temperature
- maintaining good health of workers

33. (a) Differentiate between brooding and incubation as used in poultry production. (02marks)

Brooding is the provision of warmth and care to chicks while incubation is the provision of warmth and optimal humidity to allow embryonic development of fertilized egg into a chick

(b) Give four characteristics of a good brooder. (04mark)

- Should be warm

-
- should be clean
- should be dry
- should be disinfected
- should have enough drinkers
- should have enough feeders
- should be well ventilated
- should be locked to keep out intruders
- should have litter

(c) Outline the activities that should be carried out in preparing a brooder for a day-old chicks. (04marks)

- Ensure that the temperatures are not below 28°C by providing a heat source.
- Put / lay down mold free litter to a minimum depth of 5cm and cover it with paper.
- Put clean feeders around the brooder guard like spokes of a wheel.
- Provide 2 – 3 drinkers for every hundred chicks depending on the type.
- Set up a brood guard around the heat source to protect chicks from the heat source.
- Hung a thermometer in each brooder guard to monitor the temperatures of the heat source.
- Check all bulbs to ensure that they are in good order to provide light intensity of about 4W/M² of floor area.
- The bulbs should be hanged at least 2m high so that they can give enough light over a wide area.
- The bird population per brooder preferably shouldn't exceed 200 as management becomes very difficult.

34. (a) Give three factors of weed that affect their response to herbicides. (03marks)

- Concentration of the herbicide
- Timing of application or stage of the weed to which the herbicide is applied
- Weather conditions at the time of application. Usually rain/dew may dilute the herbicide leading to ineffectiveness.
- Weed stress: stressed weed due to lack of moisture, oxygen, extreme temperature is harder to kill than health weed
- Type weeds whether grass or legumes
- Weed resistance to a herbicide
- Water quality such as pH, turbidity, dissolved salts may affect efficiency of herbicides

(b) Explain seven cultural methods that could be used to control weeds. (07marks)

- Crop rotation to break weed cycle and preventing adaptability of weed to single crop
- Cultivation to remove weed
- Mulching to prevent growth of weed
- Lethal wilting with high heat; Heat is reflected from hard surfaces to cook weeds to death
- Burning to destroy weeds and weed seeds
- Biological control or using a natural enemy to weeds
- Hand pulling weeds from the farm

- Planting weed resistant varieties
- Appropriate crop spacing to suppress weed growth
- Early planting before weeds establish
- Intercropping minimizes space where weeds can emerge

35. (a) Explain six ways by which drainage affects agricultural production. (06 marks)

- Improves soil aeration
- Prevents buildup of toxic substance from decomposition of organic matter.
- Cause favorable soil temperature that promote germination and plant growth
- Frees soil of excess water
- Make the soil lighter and easy to till
- Helps control pests and diseases
- Discourage leaching
- Facilitate growth of plants that do not require water logged conditions
- Reduces soil erosion
- Prevents rotting of roots.
- Prevents accumulation of toxins

(b) Suggest four considerations to be made when choosing a method of draining. (04marks)

- Topography
- Affordability
- Skill
- Level of drainage required
- Soil properties e.g. sand soil require surface drainage
- Economic returns anticipated
- Climatic factors such as heavy rainfall require permanent drainage
- Farmer's preference
- Type of crop to be grown

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